

2771-260-CIP DIV-RCE

**Section II (Remarks)****Pending Claims**

Claims 1-4, 6-7, 10, 12-22, 24-26, 31-36, and 38-45 are pending. Claims 5, 8-9, 11, 23, 27-30 and 37 have been previously cancelled. Claims have not presently been amended and no new matter (35 USC § 132) has been added.

**Allowed Claims**

Claims 6, 10, 12, 24-25, 31-34 and 40-41 have been allowed. Applicants thank the Examiner for indicating allowance of these claims. Note that each of claims 31-34 is in independent form and claims 6, 10, 12, 24, 24, 40 and 41 ultimately depend from one of allowed independent claims 31-34. Accordingly, no further amendment of claims 6, 10, 12, 24-25, 31-34 and 40-41 is necessary.

**Telephonic Interview of Even Date**

The undersigned thanks the Examiner for the courtesies extended during today's (October 3, 2006) telephonic conference to the undersigned. The substance of the telephonic conference is reflected in the remarks herein.

**Rejection(s) under 35 U.S.C. § 102(e) over Vaartstra**

Claims 1, 3, 4, 16, 17-22, 26, 35 and 36 are rejected under 35 U.S.C. § 102(e) as being anticipated by Vaartstra ( U.S. Patent No. 5,695,815) for the reasons noted at page 2 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below.

The deficiencies of the Vaartstra reference were previously noted in the Amendment and Response filed on May 31, 2006. That Amendment and Response is incorporated herein without having to repeat the same.

However, Applicants respectfully direct the Examiner's attention to his own words in the Final Office Action of August 3, 2006. In particular, the Office Action asserts (referring to Vaartstra) at page 2, lines 15-17 (last 3 lines) that:

In example 2 [of Vaartstra], the iridium precursor after deposition is rapid thermally treated in an oxidation atmosphere to form the film. [(Emphasis added.)]

In view of the above statement, the Examiner agrees that – in time sequence – the “iridium precursor” is “rapid thermally treated” only “after deposition.” (Emphasis added.) By contrast, Applicants’ claim 1 requires that both “the steps of (a) decomposing and (b) depositing” are achieved by “a process selected from the group consisting of chemical vapor deposition (CVD), assisted-CVD, ion plating, rapid thermal processing, and molecular beam epitaxy.”

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In the Examiner's own words, that is not taught by the Vaartstra reference because "the iridium precursor after deposition is rapid thermally treated" as noted above. (Emphasis added.)

The Office Action further asserts/alleges at page 5, lines 1-7 that:

Applicant argued [in the Amendment and Response filed on May 31, 2006] that the prior art teach 'non-volatile' deposition techniques and not the process such as claimed as CVD, ion plating, RTP, MBE, etc.

The Examiner agrees in part. While the reference teaches coating by non-volatile[] techniques, the reference does teach a post processing of the iridium coating by rapid thermal treating in an oxidation atmosphere to produce the film. The definition supplied by Applicant stated that RTP is defined as 'gas and heat' to form the film. This is clearly met by the reference. [(Emphasis added.)]

The critical point is not what the definition of RTP is, but whether the applied reference teaches each and every element of Applicants' rejected claims. So, getting focus back to the point of distinction, the Examiner has already admitted that the Vaartstra "reference teaches coating by non-volatile[] techniques" followed by "post processing . . . by rapid thermal treating" as quoted above. Certainly, in view of the above quotation, the Examiner must realize that both "the steps of (a) decomposing and (b) depositing" are not taught by the Vaartstra reference to have been achieved by "a process selected from the group consisting of chemical vapor deposition (CVD), assisted-CVD, ion plating, rapid thermal processing, and molecular beam epitaxy" - as recited in Applicants' rejected claims. As requested by the Examiner during today's telephonic conference, Applicants reiterate the point made in Applicants' May 31, 2006 Amendment and Response. The point previously made is reproduced and reiterated below:

Each of the foregoing terms (*i.e.*, "chemical vapor deposition (CVD)", "assisted-CVD", "ion plating", "rapid thermal processing" and "molecular beam epitaxy") refer to a vapor or volatile deposition technique as noted by their relevant description indicated and reproduced below. . . . [(Amendment and Response of May 31, 2006 at page 13, lines 17-20 *et seq.*; emphasis added.)]

Note also that the May 31, 2006 Amendment and Response is incorporated herein by reference in its entirety.

So, simply put, the Vaartstra reference does not teach each and every element of Applicants' rejected claims. Thus, the Vaartstra reference cannot anticipate the claims rejected under 35 USC § 102(e).

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In view of the above, Applicants respectfully request reconsideration and withdrawal of the foregoing rejection of claims 1, 3, 4, 16, 17-22, 26, 35 and 36 under 35 USC § 102(e) over Vaartstra.

**Rejection(s) under 35 U.S.C. § 103(a) over Vaartstra alone**

Claims 2, 7, 14, 38, 39 and 42-45 are rejected under 103(a) over Vaartstra alone for the reasons noted at page 3 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below.

In particular, the deficiencies of Vaartstra noted above with respect to the 35 USC § 102(e) rejection are equally applicable to the instant rejection under 35 USC § 103(a).

Accordingly, for the same reasons, Applicants submit that their claimed invention would not have been obvious over Vaartstra – i.e., Vaartstra discusses “non-volatile” deposition steps as acknowledged by the Examiner. Thus, Vaartstra cannot teach or suggest that both “the steps of (a) decomposing and (b) depositing” are achieved by “a process selected from the group consisting of chemical vapor deposition (CVD), assisted-CVD, ion plating, rapid thermal processing, and molecular beam epitaxy” as recited in the Applicants’ rejected claims.

In view of the deficiencies of Vaartstra noted herein, that reference would not have rendered obvious Applicants’ rejected claims 2, 7, 14, 38, 39 and 42-45.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the foregoing rejection of claims 2, 7, 14, 38, 39 and 42-45 under 35 USC § 103(a).

**Rejection(s) under 35 U.S.C. § 103(a) over Vaartstra in view of Nakabayashi**

Claims 13 and 15 are rejected under 35 USC § 103(a) over Vaartstra and Nakabayashi (U.S. Pat. No. 6,271,077) for the reasons noted at pages 3 - 4 of the Office Action. Applicants respectfully traverse this rejection for the reasons noted below. The above-noted deficiencies of Vaartstra are equally applicable to this rejection. As such, Applicants above-noted remarks regarding the deficiencies of Vaartstra are incorporated herein without having to repeat the same.

The Office Action asserts that while Vaartstra teaches non-volatile deposition followed by rapid thermal treatment, Nakabayashi teaches the missing deposition by volatile methodology. Specifically, to address the acknowledged deficiency of Vaartstra, the Office Action relies on Nakabayashi and points to arguably relevant language of Nakabayashi – some of which is as follows (col. 26, lines 10-29):

The gas control means 124 includes a source material vessel 126 loaded with a source metal, iridium dipivaloyl-methane (hereinafter abbreviated as Ir(DPM)<sub>3</sub>, expressed by the following general formula [structural formula omitted.] Ir(DPM)<sub>3</sub> is an orange powder and is sublimated for the use in forming thin

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films. To this end the source material vessel 126 is disposed in a thermostatic vessel 128 which heats the source material vessel 126 to 150-200 °C. [Underlining emphasis added.)]

Bearing in mind that the “Ir(DPM)<sub>3</sub> is an orange powder and is sublimated” by definition<sup>1</sup> means that the Ir(DPM)<sub>3</sub> of Nakabayashi is sublimated from a dry state (orange powder) to its sublimated state (gaseous or vapor) without going through a liquid state. However, by stark contrast, Applicants “decomposing” step (a) recites (in relevant part):

(a) decomposing an iridium containing precursor provided in an organic solvent, and [(Emphasis added.)]

So, while Nakabayashi may discuss sublimating Ir(DPM)<sub>3</sub>, Nakabayashi does NOT teach or suggest “deposition” of an “iridium containing precursor provided in an organic solvent” – which obviously is in a liquid state – as recited in Applicants’ rejected claims.

In view of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 13 and 15 under 35 USC § 103(a) over Vaartstra in view of Nakabayashi.

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<sup>1</sup> “Sublimate” – “To transform directly from the solid to the gaseous state or from the gaseous to the solid state without becoming a liquid.” (Emphasis added.)

“Sublimate” – “A deposit that has grown from a vapor rather than from a solution.” Definition from answers.com (<http://www.answers.com/topic/sublimate>).

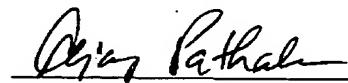
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**CONCLUSION**

The claims are now in proper form and condition for allowance. Favorable action is hereby requested. If any issues remain, incident to the formal allowance of the application, the Examiner is earnestly requested to contact the undersigned attorney at (919) 419-9350 to resolve same, so that the patent on this application can be issued at the earliest possible date.

Respectfully submitted,

Date: Oct. 3, 2006



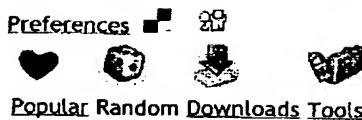
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**Enclosures:**

Web pages from Answers.com regarding sublimate [5 pages]

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sub·li·mate (süb'lə-mät')

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dictionaries

v., -mat·ed, -mat·ing, -mates.

v. tr.

1. *Chemistry.* To cause (a solid or gas) to change state without becoming a liquid.
2.
  - a. To modify the natural expression of (a primitive, instinctual impulse) in a socially acceptable manner.
  - b. To divert the energy associated with (an unacceptable impulse or drive) into a personally and socially acceptable activity.

v. intr. *Chemistry.*

To transform directly from the solid to the gaseous state or from the gaseous to the solid state without becoming a liquid.

[Latin *sublimāre*, *sublimāt-*, to elevate, from *sublimis*, uplifted.]

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10/2/2006

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④ Medical

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sub·li·mate (süb'lə-māt')  
v., -mat·ed, -mat·ing, -mates.

1. To transform directly from the solid to the gaseous state or from the gaseous to the solid state without becoming a liquid.
2. To modify the natural expression of an instinctual impulse, especially a sexual one, in a socially acceptable manner.

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Sublimate

A deposit that has grown from a vapor rather than from a solution. Sublates are often seen in blowpipe testing, and some minerals around volcanoes form this way.

▼Continued below...

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④ WordNet

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The **verb** sublimate has 5 meanings:

**Meaning #1:** direct energy or urges into useful activities

**Meaning #2:** make more subtle or refined  
Synonyms: rarefy, subtilize

**Meaning #3:** remove impurities from, increase the concentration of, and separate through the process of distillation  
Synonyms: purify, make pure, distill

**Meaning #4:** change or cause to change directly from a solid into a vapor without first melting  
Synonym: sublime

**Meaning #5:** vaporize and then condense right back again  
Synonym: sublime

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The **adjective** sublimate has one meaning:

**Meaning #1:** made pure  
Synonyms: purified, refined

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① [Translations](#)

[Directory](#) > [Words](#) > [Translations](#)



**Italiano (Italian)**  
sublimato, sublimare

**Português (Portuguese)**  
n. - sublimado (m)  
v. - sublimar  
adj. - sublimado

**Русский (Russian)**  
возвышать, очищаться, сублимировать, возгонять, сублимат

**Español (Spanish)**  
v. tr. - sublimar, refinar, elevar  
v. intr. - sublimarse  
n. - sublimado, corrosivo  
adj. - sublimado, refinado, elevado

**Svenska (Swedish)**  
n. - sublimat, kvicksilverklorid  
v. - sublimera, förädla, adla  
adj. - sublimerings-

**中文 (简体) (Chinese (Simplified))**  
使升华, 使高尚化, 使理想化, 升华, 高尚化, 纯化, 升华物

**中文 (繁體) (Chinese (Traditional))**  
v. tr. - 使昇華, 使高尚化, 使理想化  
v. intr. - 昇華, 高尚化, 純化  
n. - 昇華物

**한국어 (Korean)**  
v. tr. - 승화시키다, 고상하게 하다, (청소년을) 선도하다  
v. intr. - 승화하다, 공상하게 되다  
n. - 승화물

**日本語 (Japanese)**  
v. - 昇華させる, 純化する  
adj. - 昇華した, 高尚になった  
n. - 昇華物, 昇華

**(الاسم) العربية (Arabic)**  
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**עברית (Hebrew)**  
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הפר לגז (מוצק), נצרפ, זוקק, עדן (דוח מין)  
חומר, משקע או גביש המיציר ע"ז זיקוק, מוצר מזוקק, סוביליטט

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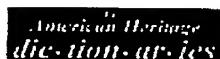
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